

Rochester DX Association



February Meeting Presentation

Paul, K2DB will discuss the W1AW/2 operation and status and demonstrate the sign up sheet and encourage people to sign up.

**Tuesday, February 18th, 7:30pm
Monroe County EOC
1190 Scottsville Road**



ROC City Net

**The premier HF net from
Upstate New York**

**Every Wednesday at
8:00 PM (0100 UTC) @
3826KHz +/-**

**And Now on 145.11 Bristol
Repeater,
Sunday @ 7:30 PM
Join Us!**

Did you Order a Badge?

Still holding 14 RDXA name/callsign badges. All available at the Feb. 18th meeting. If you ordered one, be sure to stop by and retrieve it. If unable to do that, and needs to be mailed, please let me know. Thanks.

Irv — AF2K af2k@juno.com

Working FT5ZM on the low bands at N2ZN

In response to a diminishing number of requests, I'd like to share some of my experiences working the expedition to Amsterdam Island, particularly on the low bands.

To start, I needed Amsterdam for an all time new country, so I was naturally very intent on working them, regardless of band or mode. So I started doing my research ahead of time.

The most basic things I looked at were the distance and path to Amsterdam. From this area, it is roughly 11,000 miles, regardless if you beam long or short path. The short path heading from here is at 82 degrees, straight over Africa, and a non polar path. Seeing that it wasn't a polar path, I had hope for a QSO or two on the low bands-you can see the path on the Google Earth plots below.

Even though it is very far, since the path is not through the auroral zone, this path is "easier" than trying to work some of the closer DX that is over the pole. I remembered back to the expedition to Kerguelen Island back in 2005, where I was able to work them without too much trouble as well, and hoped for a similar result this time around.



I checked with my propagation prediction program, W6ELProp, to see the optimal times for the high bands; in practice, the predictions turned

out to be pretty accurate. For the low bands, however, the real important stuff to know is the sunrise and sunset times at my location and the DX location.

For Amsterdam, their sunrise was roughly at 0000z every day, while our sunset time was roughly at 2230z, so there was about an hour and a half of common darkness. Add to that the sunset and sunrise enhancements that happened within that hour and a half, and things started looking pretty good as far as the low bands went.

I started listening on 80 meters the day after they came up on the air, and sure enough, they had a usable signal from around 2330z until 0030z, with an excellent sunrise peak at 0000z; in fact, they were almost a real 599 right at their sunrise on 80 meters. The same scenario repeated itself the next night, and I was able to work them at 0023z. They had a great signal, and I think I probably didn't even need the receive antennas to hear them around their peak.

Next up was to try to listen for them on 160. The next night, I figured that I would listen to see if I could even hear them. I heard nothing at my sunset, but they were reported as being on 1826.5 and working Europe. As time went on, they became audible around 2230, and then by 2245, they seemed workable. At this point, the op started to work only NA stations, so they must have flipped the RX antenna in our direction. I started calling at that point, and by 2358, I had them in the log, right at their sunrise. They stayed in fairly well until about 0015z, when they started to fade, and by 0030z, there was nothing left. So, to this area, there was a real solid opening for roughly a half an hour on either side of their sunrise on 160.

Of course, on the higher bands, the opening lasted longer; I also worked them on 40 meters about two hours after sunrise, and I know that there were reports of east coast stations working them on 30 meters well after our own sunrise, approaching their sunset. Unfortunately, our sunrise and their sunset would not have been a usable path on 160 because of no common darkness, but the west coast opening to Amsterdam on 160 was around 1400z, from what I had seen.

I don't recall what the SFI or A/K index were at the time, but they must have been sufficiently low to

allow long haul propagation on the low bands, so a bit of luck was involved too. I had thought that maybe from this area, we may get some long path propagation before sunset to the southeast, but I

didn't hear them on that path from my location. Even still, sticking with the basic low band propagation during common darkness and sunrise/sunset was the key to success.

My setup to work them was as follows:

TX antenna: Dual band 160/80 meter vertical, over 36 100' radials. Full size wire radiators on both bands sharing one feed (think "fan dipole" except as two vertical radiators over a common radial field).

RX antenna: 560' beverage pointing at Africa (roughly 90 degrees).

Rig/amplifier: Yaesu FT-1000MP Mark 5 driving an Alpha 76A amp for 1 kW output.

— Ken Boasi, N2ZN



Working with SMDs, some observations from a beginner

SMDs (surface mount devices) are a type of electronic component that instead of through-hole leads, are instead held in place on a board by just solder. They can be either integrated circuits or passive components. SMDs have been around in the electronics industry for well over twenty years. Yet only recently have they seen use in the homebrew market, mostly because of their size and difficulty in handling. I made it a personal goal to work with SMDs with tools specialized for their soldering requirements.

As part of this project, I purchased a software defined radio receiver kit, the SoftRock Ensemble II. It has a small number of surface mount devices and would provide a good starter. I also collected a number of failed computer components already populated with SMDs for practice. The next item would be a tool suited for SMD work; a hot air rework station. Soldering irons can and are regularly used on SMDs, but I wanted this to be an exercise in the hot air method.

A hot air rework station is a fairly inexpensive soldering tool, nowadays. Common low-end stations are priced in the \$80-200 range and come with a

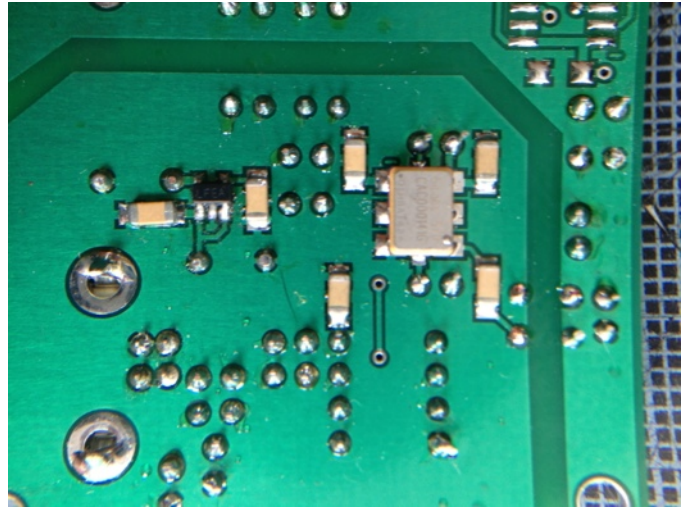


variety of attachments and features. All of them have precision temperature and airflow control through a PIC chip and thermostat. I chose one in the less expensive range, but included a temperature controlled soldering iron. Magnifiers,

tweezers and solder paste round out the other tools. Magnifying tools are absolutely necessary. The parts are just too small to work with, otherwise. Tweezers are needed for the same reason. I chose leaded paste as it would have a lower working temperature and easier workability than tin-only.

The learning curve with using hot air isn't as bad as it would seem. Youtube has videos from both experienced amateurs and professionals on the use of rework stations. I used the spare computer parts as a starting point, adjusting temperature and airflow before attempting to work with any new parts.

with a soldering iron, careful inspection and clean up after soldering is necessary to a successful rework.

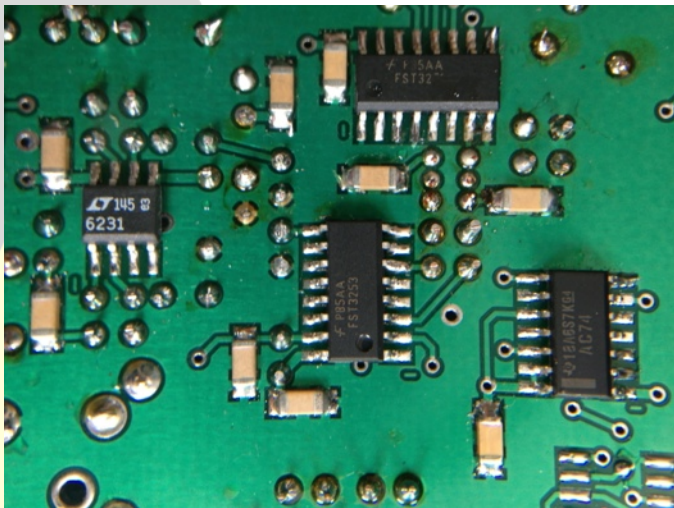


Done correctly, the solder will flow evenly on all legs/pads. Surface tension will cause the part to align on the pads. Very rarely will you have to manipulate the part into place.

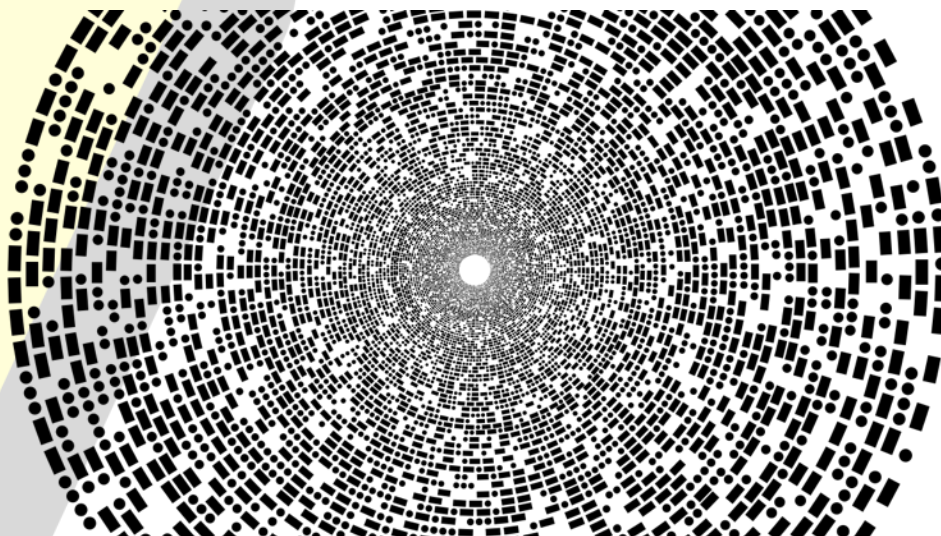
Correcting mistakes is one big positive in the use of hot air rework. I made a mistake in my build of the SDR where I populated a chip at a location that was unnecessary for the HF configuration of the receiver. This would have been a near disaster for a soldering iron-only situation, having to heat and desolder each leg of the chip individually. The rework station made short work of this and I had the errant chip removed within seconds.

In the end, the radio kit went together quickly. The hot air station making the SMDs just another part of the build and not so exotic.

— Andrew Lesny, W2FG



Applying the right amount of solder paste was the more difficult task. I had trouble with uneven amounts of solder on the legs. Occasional solder bridges were the result. A smaller needle on the applicator would have helped. Sometimes solder would separate from the applied areas and form balls rather than be attracted to the pads. Just as



Rochester DX Association

Club Station — W2RDX

Club Website — <http://www.rdxa.com>

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All those with an interest in amateur radio and DXing and contesting are cordially invited to any meeting and to join RDXA. Meetings are held at 19:30 Local time on the 3rd Tuesday of each month, September through June.

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Any other correspondence to: Irv Goodman, AF2K

